CLEAN & GREEN COMMITTEE

11 DECEMBER 2023

REPORT TITLE:	Financial Appraisal for BBC Net Zero Carbon 2030 Target
REPORT OF:	Marcus Hotten, Director of Environment
REPORT IS FOR:	Decision

REPORT SUMMARY

To consider and approve the proposed Financial Appraisal for the BBC Net Zero Carbon 2030 Target by the Council and agree the next steps in developing the Council's response to Climate Change.

The report identifies a potential 93% reduction in carbon emissions for the Council corporate, housing, waste fleet and managed services, falling from 1,699tCO2e for the baseline 2018/19 year to 118tCO2e in 2030.

RECOMMENDATIONS

Members are asked to recommend to the Finance, Assets, Investment and Recovery Committee:

R1. To continue procuring green/zero carbon electricity tariff for Council properties.

R2. To allocate an additional £120,000 revenue budget for the purchase of the of green diesel (Hydrotreated Vegetable Oil) for the Council fleet vehicles, currently using mineral diesel.

R3. To allocate £63,178 of capital funding to deliver energy-saving improvement to Council assets as set out in the report.

SUPPORTING INFORMATION

1.0 INTRODUCTION

1.1 In November 2022, the Community, Environment & Enforcement Committee approved the updated Environment Strategy 2023-2026 which set out the high-level approach as to how Brentwood Borough Council will achieve its declared aims of achieving carbon neutrality within its own activity by 2040 and Borough wide by 2050.

1.2 Further to that report, at a meeting on 21 June 2023, Council approved the declaration of a Climate Emergency, where a commitment was made to achieve net-zero carbon by 2030 for its own estate, rather than the previous 2040 ambition.

Pathway to Carbon Neutral by 2030

1.3 With respect to the scope of the Financial Appraisal for the Council to achieve its Net Zero Carbon target by 2030, the baseline carbon footprint for Brentwood Borough Council (BBC) is from 2018/19. Carbon emissions have been calculated from corporate, social housing and managed services which include waste fleet fuel and managed services such as at the King Georges Pavilion site. This baseline year of 2018/19 for determining progress against, was chosen, as a pre-covid business as usual year.

Figure 1 below demonstrates the total carbon emissions aligned to Council activity. There has been a 34.7% reduction since the baseline year, from 1,699tCO2e to 1,108tCO2e .

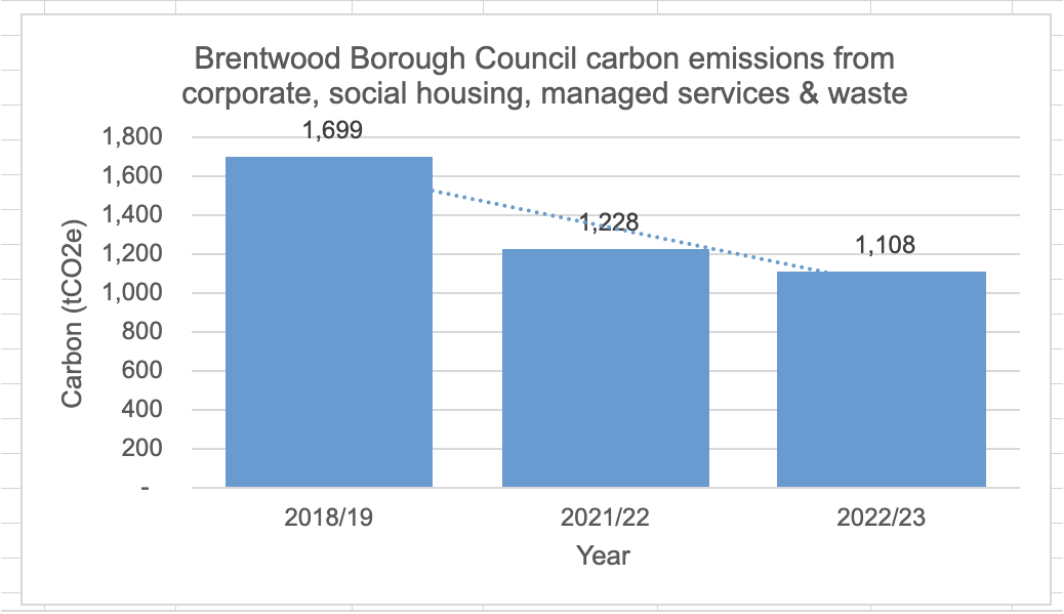

Figure 1: Trend in carbon emissions aligned to BBC 2018/19 to 2022/23 (data not available for 2019-21)

1.4 The Financial Appraisal of Council Net Zero Carbon Emissions Action has identified **a** potential **93% reduction in carbon emissions for the Council corporate, housing, waste fleet and managed services, falling from 1,699tCO2e for the baseline 2018/19 year to 118tCO2e in 2030**. Further carbon saving opportunities will be explored, to address the remaining 7%, however at this stage the priority is to focus on the initial largest potentials gains to reduce the carbon footprint. The net zero carbon reduction pathway is illustrated below.

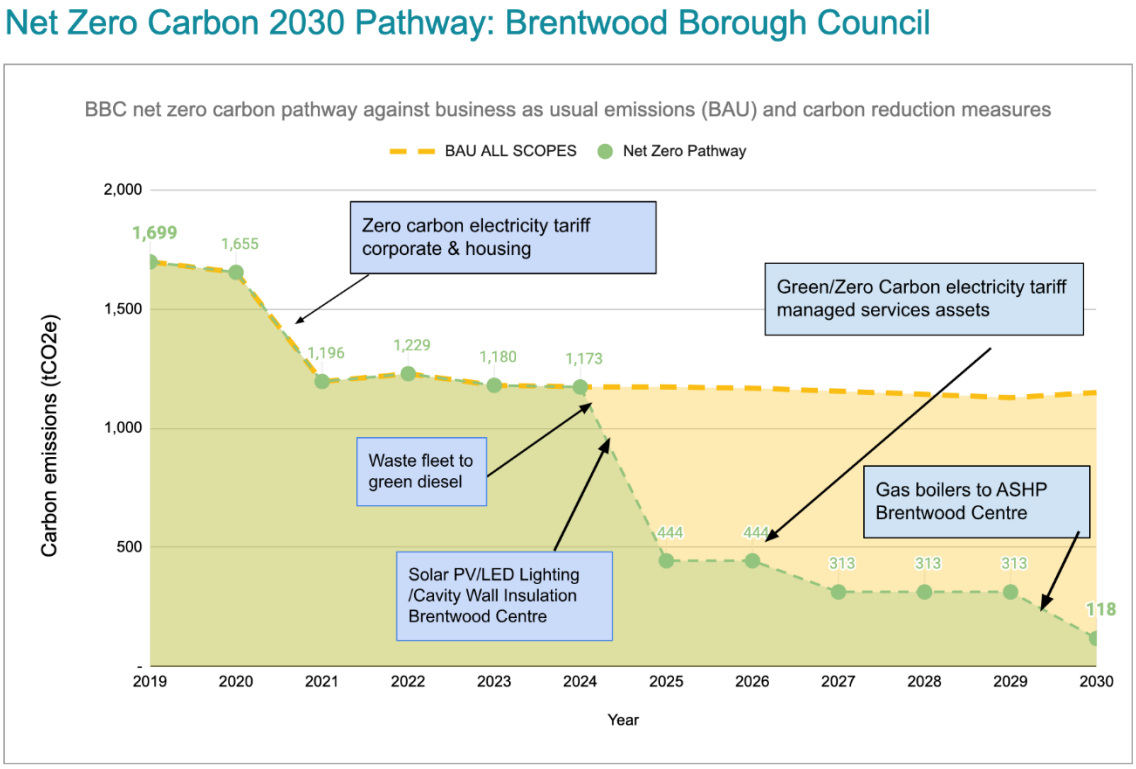

Figure 2: BBC Net Zero 2030 Pathway

1.5 To support investment decisions and provide prioritisation of energy savings measures, consideration should be given to those schemes that achieve the greatest carbon emissions reduction per pound(£) spent. The latter process is used by Salix Finance - the UK Government's public sector investment vehicle for awarding funding for decarbonisation schemes. For applicants to access the fund, individual carbon reduction measures are assigned a persistence factor (PF), this is based on roughly how many years the measure will continue to provide the carbon savings calculated. This is then used to calculate "**lifetime abatement cost /tonne carbon (£/LTCO2e)".**

2.0 BACKGROUND

2.1 High level energy efficiency surveys were carried out on the major buildings in the Council corporate, housing and managed services portfolio: These included The Brentwood Centre, Kings Pavillion, Merrymeade House, Town Hall, Gibraltar House, Drake House and Masefield Court. These sites are seen as the low hanging fruit with respect to being large energy users.

2.2 The Council corporate estate is made up of around 29 locations ranging from recreation pavilions to car park street lighting. With respect to social housing stock there are around 110 sites where the Council pays for communal lighting or heating, for example, in stairwells and landings in tower blocks.

2.3 With respect to buildings; quotes have been obtained for cavity wall insulation and LED lighting upgrades at The Brentwood Centre. There is currently a procurement exercise already underway to install solar PhotoVoltaics and upgrade the building management system at The Brentwood Centre.

2.4 The Council currently procures its electricity supply with EDF Zero Carbon for Business. This supply has been zero carbon rated from approximately 2020. Thus, all corporate, and housing sites supplied on this tariff are default zero with respect to carbon footprint impact. The EDF Zero Carbon Tariff is generated from 100% nuclear sources, although not a renewable source, nuclear does not generate carbon emissions in the production of electricity. It is recommended that the Climate Emergency Committee embeds procurement to secure a green/zero carbon electricity tariff for perpetuity.

2.5 Further carbon savings are also available if buildings under the managed services assets such as King Georges Pavilion and the Town Hall switch to a green/zero carbon tariff.

Proposed Carbon Reduction Measures

2.6 The table below illustrates that for those measures requiring extra capital (Brentwood Centre Photovoltaics and Building Management System overhaul capital has been allocated) expenditure of £63,178 and revenue expenditure of £122,452. Savings on energy costs from capital expenditure would realise financial savings of around £64,597 per annum. **The measures implemented to date[1], identified and underway would achieve an 81% reduction in the BBC carbon footprint.** The full 93% carbon reduction would be achieved once The Brentwood Centre gas boilers move over to air source heat pumps at the end of the decade.

Measure	Cap-Ex for solution (£)	Revenue impact (£)	net energy savings costs (£)	annual carbon reduction (tCO2e)	Persistence factor	Lilfe time abatement cost (£ /tCO2e)	payback for measure (yrs)	year of install
Waste Fleet to Green Diesel		122,452		712.0	1.0	-	n/a	2024/25
PhotoVoltaics /Building Management System Upgrade Brentwood Centre				39.3	22.5	-		2024/25
Lighting Upgrades Brentwood Centre	47,546		46,734	32.4	25	59	1.0	2024/25
Cavity Wall Insulation Brentwood Centre	9,632		5,495	16.6	30	19	1.8	2024/25
Social Housing Communal Areas Lighting Controls/Upgrades	*6,000*		12,368	2.2	8.89	304	0.5	2025/26
Green Tariff Managed Services Assets				131.6				2026/27
Subtotal	**63,178**		**64,597**	**728.6**	**22**			
Brentwood Centre gas boilers to ASHP	*450,000*		*- 29,929*	- 0.8				2029/30
Totals	**513,178**		**34,667**	**727.8**		**48**		

Table 1: BBC Carbon Reduction Measures, in italics subject to further investigation, in blue zero carbon tariff

[1] The zero-carbon tariff introduced in 2021 reduced the corporate and housing baseline carbon emissions from electricity by 503tCO2 or around 30%

2.7 The main boilers were replaced (like for like gas boilers) at The Brentwood Centre in 2014 thus replacement with lower carbon heating (air source heat pumps) would not be looked at for at least 3-5 years. As a result, a definitive quote has not been sought, as the market is still relatively immature.

2.8 The table below shows the lifetime carbon abatement costs based on the capex, as can be seen building fabric (cavity wall insulation), then LED lighting upgrades and solar PV offer the most efficient investment route. Social Housing costs are high due to it being a retrofit measure with low carbon savings. As can be seen all measures would be suitable for Salix external funding criteria being below the £305 / LTCO2e threshold.

Measure	LT£/tCO2e	Annual Carbon Reduction (tCO2e)
Cavity Wall Insulation Brentwood Centre	19	16.6
Lighting Upgrades Brentwood Centre	59	32.4
Green Diesel (HVO) Waste Fleet	172	712
Social Housing Communal Areas Lighting	304	2.2

Table 2: Shows the lifetime carbon abatement costs in ascending order

2.9 As can be seen from the table above the capital expenditure to switch the waste fleet vehicles from mineral to green diesel (Hydrotreated Vegetable Oil) is included based on a one-year cycle of use.

2.10 A business case was prepared for Brentwood Council waste vehicle fleet for the move to hydrotreated vegetable oil (HVO) this is attached in the Appendix. HVO would provide a 99% reduction in carbon emissions based on the UK Government GreenHouse Gas Conversion Factors 2023. In summary at today's prices (Nov 7th 2023) for HVO vs regular diesel (diesel, £1.29 vs HVO, £1.73) results in a 34% annual increase in revenue cost of £122,452 to enable the full diesel fleet to run on HVO. Over seven years this equates to £857,164 and **would deliver a 42% (712tCO2e) reduction in the BBC carbon footprint.**

2.11 There is currently a challenge to the quality of HVO coming into Europe, raised by Germany, as to the renewable credentials of green diesel from China. It will be essential, to avoid reputational risk to the council, that the outcome of this is monitored before any move to HVO. This may be impacting the current high costs for HVO.

2.12 Work is also underway to explore bulk buying of HVO between the five South Essex Councils.A brief high-level view is explored below with respect to procuring electric vs diesel new waste fleet vehicles.

3.0 OTHER OPTIONS CONSIDERED

3.1 The main sources of carbon under the influence of the Council the breakdown is shown in the chart below:

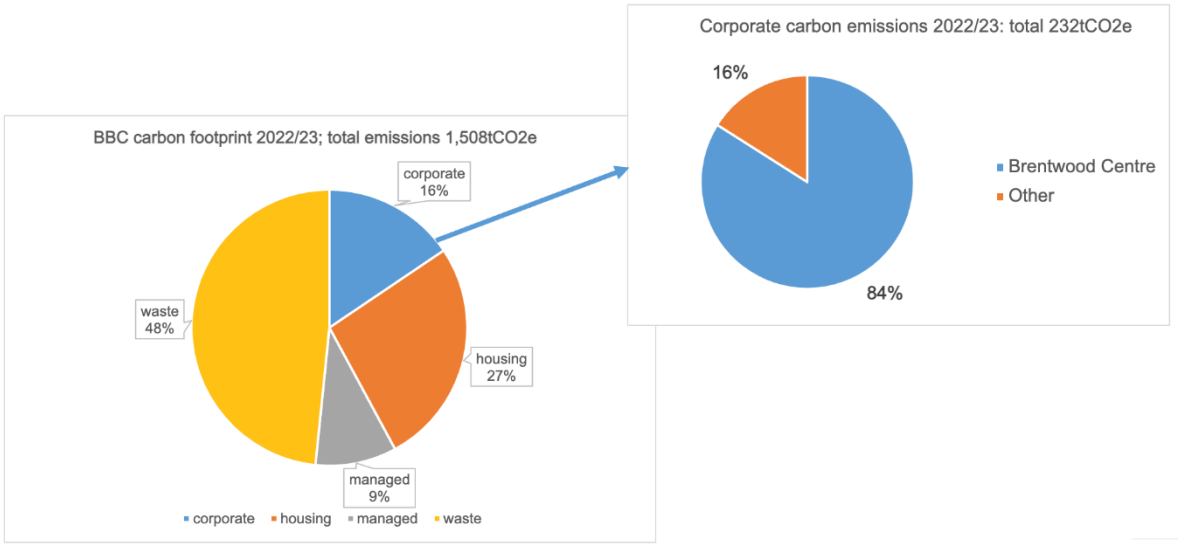

Figure 3 BBC carbon emission sources and impact of The Brentwood Centre

3.2 As can be seen the main sources of carbon emissions are the waste fleet, housing and corporate estate, of which The Brentwood Centre represents 84% of emissions. Given that significant capital circa £1m (photovoltaics and building management system) has been allocated the option to dispose/redevelop the site is not one to be considered at this time.

3.3 The Council vehicle fleet replacement costs, in their entirety at 2023 prides, equate to an estimated £5.69m for regular diesel vehicles, in comparison to £9.94m where electric vehicle alternatives exist . Therefore the financial burden for an electric fleet is approximately £4.25m.

3.4 Looking at running costs for a single Eagle Dust Cart Westminster Council found savings (which are dependent on diesel & electricity costs) of around £2,000 per month per vehicle. Based on the difference in cost for an electric vs diesel dust cart of circa £196,000 and running costs for a diesel dust cart of around £24,000 per annum, over the lifetime of the vehicle (seven years typically) savings to the council on fuel would equate to £24,000 per year (presuming electricity was at no cost!), with lifetime savings of £168,000. This would still not payback on the uplift cost for electric dust carts.

3.5 Furthermore, the procurement of an electric fleet does not take into consideration the cost of charging infrastructure required. With the future of the existing Council waste depot yet to be determined, then potentially the depot may relocate in an estimated three years time. Therefore, any significant investment in electric charging infrastructure should be delayed until there is certainty over the long-term siting of the waste depot.

3.6 With respect to carbon emissions from an electric fleet; although there would be zero tailpipe emissions, carbon emissions would only be zero while the council maintains its green tariff for electricity. Currently the UK national grid is approximately 70% green if including solar, wind and nuclear.

4.0 FINANCIAL IMPLICATIONS

Name & Title: Tim Willis, Director – Resources & Section 151 Officer
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4.1 An additional annual £120,000 revenue budget will be required to fund the purchase off HVO fuel as an alternative to Diesel. This budgetary pressure cannot be accommodated in the existing budget allocation, and consideration will be required within budget setting cycle of the medium term strategy against other competing financial priorities.

4.2 The request for an additional £65,000 capital is not part of the Council's existing capital programme and would have to be considered within the upcoming budget setting cycle for next municipal year.

5.0 LEGAL IMPLICATIONS

Name & Title: Claire Mayhew – Joint Acting Director of People and Governance & Monitoring Officer
Tel & Email: 01277 312741/claire.mayhew@brentwood.gov.uk

None.

6.0 EQUALITY & HEALTH IMPLICATIONS

Name & Title: Kelly Redston,
Tel & Email : kelly.redston@rochford.gov.uk

The Public Sector Equality Duty applies to the Council when it make decisions. The duty requires us to have regard to the need to:

a) Eliminate unlawful discrimination, harassment and victimisation and other behaviour prohibited by the Act. In summary, the Act make discrimination etc. on the grounds of a protected characteristic unlawful.
b) Advance equality of opportunity between people who share a protected characteristic and those who do not.
c) Foster good relations between people who share a protected characteristic and those who do not, including tackling prejudice and promoting understanding.

The protected characteristics are age, disability, gender reassignment, pregnancy and maternity, marriage and civil partnership, race, religion or belief, gender, and sexual orientation. The Act states that 'marriage and 'civil partnership' is not a relevant protected characteristic for (b) or (c) although it is relevant for (a).

The proposals in this report will not have a disproportionate adverse impact on anybody with a protected characteristic.

6.0 ENVIRONMENT AND CLIMATE IMPLICATIONS

Name & Title: Henry Muss, Sustainability Manager
Email : Henry.muss@brentwood.gov,uk

The implications are included within this report with respect to achieving the Councils net zero carbon 2030 aspiration.

REPORT AUTHOR:

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BACKGROUND PAPERS

None